

Notice of Allowability

Application No.

10/657,608

Applicant(s)

NEFF, ET AL

Examiner

Scott A Hughes

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-30.
3. ☒ The drawings filed on 08 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**


7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____. |
| 5 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____. | 6 <input type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |


BERNARD E. GREGORY
PRIMARY EXAMINER

A.U. 3662

CN

DETAILED ACTION

Allowable Subject Matter

Claims 1- 30 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 1, 9, 16, and 20 all include the step of comparing a plurality of phase angles of target data to a background trend and selecting the phase angle of the target data having the maximum deviation from the background trend. The prior art showed similar methods of comparing plotted data points to background trends, but none of the prior art showed a comparison of phase angle to background trend as claimed in the present invention.

Mahob disclosed a system based on angle comparison to a background trend, but his method used a polarization angle defined as the preferred orientation in the intercept-gradient space of a crossplot.

Other similar art, such as Swan, Dey-Sarkar, Foster, and Castagna, showed the calculation a slope or intercept deviation from a background trend in AVO crossplots (intercept vs gradient plots) but did not disclose comparing phase angles to the background trend. The angle referred to in much of the prior art was the incident angle and not the phase angle.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Corrigan, who discloses a method of AVO analysis.

Crider, who discloses using angle of incidence in AVO analysis.

Swan, who discloses a seismic velocity estimation method.

Dey-Sarkar, who discloses a seismic data hydrocarbon indicator.

Mahob, who discloses AVO hodograms and polarization attributes.

Keho, who discloses using polarization to identify anomalies.

Castagna, who discloses an AVO analysis using crossplot trends.

Furniss, who discloses hydrocarbon detection through AVO inversion.

Simm, who discloses the anatomy of AVO crossplots with background trends.

Foster, who discloses AVO crossplotting.

Anderson, who discloses using polarization angle in AVO crossplots.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A Hughes whose telephone number is 703-305-0430 until April 5th, and 571-272-6983 after April 5th. The examiner can normally be reached on Monday through Friday, 8:30 am - 5:00 pm.

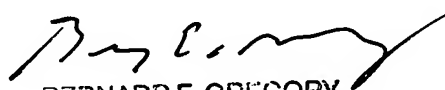
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 703-306-4171. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-4180.



SAH
March 17, 2005



BERNARR E. GREGORY
PRIMARY EXAMINER

Art. 3662